

Audit Report



JOINT OPERATION PLANNING YEAR 2000 ISSUES

Report No. 00-026

October 27, 1999

Office of the Inspector General
Department of Defense

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Acronyms

COMPASS	Computerized Movement Planning and Status System
COMPES	Contingency Operation/Mobility Planning and Execution System
GCCS	Global Command and Control System
GCCS-A	Global Command and Control System-Army
GTN	Global Transportation Network
JFAST	Joint Flow and Analysis System for Transportation
JOPE	Joint Operation Planning and Execution System
MAGTF	Marine Air-Ground Task Force
TPFDD	Time-Phased Force and Deployment Data
Y2K	Year 2000



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October 27, 1999

MEMORANDUM FOR DIRECTOR, DEFENSE INFORMATION SYSTEMS
AGENCY

SUBJECT: Audit Report on Joint Operation Planning Year 2000 Issues
(Report No. 00-026)

We are providing this report for your review and comment. We considered management comments on a draft of this report when preparing the final report.

DoD Directive 7650.3 requires that all recommendations be resolved promptly, and there is special urgency regarding year 2000 issues. The Defense Information Systems Agency comments were partially responsive; therefore, we request additional comments on Recommendations A.1., A.2., and A.5. As a result of Joint Staff comments, we deleted draft Recommendation B.1.b.(2) and renumbered draft Recommendation B.1.b.(3) as B.1.b.(2). We request that the Defense Information Systems Agency provide comments by November 24, 1999.

We appreciate the courtesies extended to the audit staff. Questions on the audit should be directed to Ms. Evelyn R. Klemstine at (703) 604-9172 (DSN 664-9172) (eklemstine@dodig.osd.mil) or Mr. Timothy E. Moore at (703) 604-9633 (DSN 664-9633) (tmoore@dodig.osd.mil). See Appendix E for the report distribution. The audit team members are listed inside the back cover.

A handwritten signature in black ink, reading "Robert J. Lieberman", is positioned above the typed name.

Robert J. Lieberman
Assistant Inspector General
for Auditing

Office of the Inspector General, DoD

Report No. 00-026
(Project No. 9LG-0096)

October 27, 1999

Joint Operation Planning Year 2000 Issues

Executive Summary

Introduction. This is one of a series of reports being issued by the Inspector General, DoD, in accordance with an informal partnership with the Chief Information Officer, DoD, to monitor DoD efforts to address the year 2000 (Y2K) computing challenge. For a listing of audit projects addressing the issue, see the Y2K web pages on the IGnet at <http://www.ignet.gov>.

The Joint Operation Planning and Execution System (JOPES) is the integrated, joint, conventional command and control system used by the joint planning and execution community to conduct joint planning, execution (including theater-level nuclear and chemical plans), and monitoring activities. It is an essential mission application within the Global Command and Control System that provides force planning and operations support.

Objectives. The overall objective was to evaluate whether DoD adequately planned for and managed Y2K risks to avoid problems in planning and executing mobilization, deployment, employment, and sustainment activities associated with military operations. Specifically, we evaluated whether DoD assessed the mission criticality and Y2K compliance of the operational planning information systems and developed end-to-end tests and contingency plans for those systems.

Results. The Defense Information Systems Agency certified the Global Command and Control System and, therefore, JOPES as fully Y2K compliant (assurance level 2a) in December 1998 without testing all external system electronic interfaces and without a complete Y2K memorandum of agreement with the Marine Air-Ground Task Force II program office. Additionally, JOPES tests revealed ambiguous display and printing of dates and JOPES segments contained software that was not Y2K compliant. As a result, the level of Y2K certification for JOPES was incorrect and the system was at an increased risk of not being able to continue operations in the event of a Y2K disruption (finding A).

The Defense Information Systems Agency prepared a JOPES system contingency plan that met DoD Year 2000 Management Plan requirements; however, the Joint Staff did not have a complete Y2K operational contingency plan to continue crisis action planning and operations support in the event of a JOPES failure because of Y2K problems. Without complete operational contingency plans, the DoD ability to

respond to military crises in a timely manner was reduced and there was increased risk that DoD will not have adequate alternative ways to quickly respond to combatant command requests for equipment or personnel (finding B).

Summary of Recommendations. We recommend that the Director, Defense Information Systems Agency, report the Global Command and Control System at assurance level 3d; ensure that the electronic interfaces between JOPES and the systems interfacing with JOPES are tested; complete the memorandum of agreement between the Global Command and Control System and the Marine Air-Ground Task Force II; communicate to all JOPES users the results of Y2K tests on the Y2K transition baseline; and establish a Global Command and Control System baseline that will transition into the year 2000. We recommend that the Director, Joint Staff, revise the operational contingency plan for the Global Command and Control System to incorporate the requirements of the DoD Year 2000 Management Plan; direct the unified commands to prepare complete JOPES operational contingency plans at the unified command level; establish a training plan for JOPES planners; and implement a requirement for unified commands to submit prevalidated 10-day airlift and 30-day sealift requirements. We recommend that the Commander in Chief, U.S. Transportation Command, identify resources to meet early time-phased force and deployment data requirements submitted by unified commands, hold conferences to confirm and deconflict the unified command airlift and sealift requirements, and validate with the applicable requesting command that the identified resources will meet time-phased force and deployment data requirements.

Management Comments. The Defense Information Systems Agency nonconcurred with the recommendation that the Global Command and Control System be reported at assurance level 3d. It concurred with the recommendation that the electronic interfaces between JOPES and systems interfacing with JOPES be tested, but indicated that no corrective actions were necessary as the interfaces had previously been tested. The Defense Information Systems Agency stated that all interfaces were successfully tested on the 3.0.1 and 3.0.2 Global Command and Control System baselines and were in the process of being validated by the Joint Interoperability Test Command. The Global Transportation Network was being modified and would be ready to interface with the Global Command and Control System during the October U.S. Transportation Command operational evaluation. The Defense Information Systems Agency stated that all known Y2K problems with JOPES segments either had been fixed or operational workarounds had been established. The Defense Information Systems Agency concurred with the recommendation to complete the memorandum of agreement with the Marine Air-Ground Task Force II program office, stating that the completed memorandum of agreement was signed September 8, 1999. The Defense Information Systems Agency concurred with the recommendation to communicate to all JOPES users the results of Y2K tests, stating that the results would be posted on the Global Command and Control System Secret Internet Protocol Router Network home page on October 1, 1999. The Defense Information Systems Agency concurred with the recommendation to establish a Global Command and Control System baseline that will transition into the year 2000, but indicated no corrective actions were necessary. The Joint Staff concurred with the recommendation to revise the Global Command and Control System Operational Contingency Plan to incorporate the requirements of the

DoD Year 2000 Management Plan. The Joint Staff concurred with the recommendation to direct unified commands to prepare JOPES operational contingency plans applicable to each unified command's requirements, stating that a tasking message was being coordinated for release. The Joint Staff nonconcurred and recommended deletion of the recommendation to establish and implement a training plan for JOPES planners, stating that the planners already had a significant amount of training. The Joint Staff concurred with the recommendation to establish 10-day airlift and 30-day sealift time-phased force and deployment data requirements for active operations to transition to the year 2000. The U.S. Transportation Command concurred with the recommendations to identify transportation assets to meet early time-phased force and deployment data requirements by unified commands, host conferences as necessary to confirm and deconflict resources, and to provide applicable unified commands with resourced time-phased force and deployment data closure estimates based on strategic resources allocated to support deployment. A discussion of management comments is in the Findings section of the report and the complete text is in the Management Comments section.

Audit Response. The Defense Information Systems Agency comments are partially responsive. The Joint Interoperability Test Command had not certified the interfaces for the Computerized Movement Planning and Status System, the Global Command and Control System-Army, or the Global Transportation Network. Therefore, JOPES cannot be assigned an assurance level higher than level 3d in accordance with the DoD Year 2000 Management Plan. Additionally, the Defense Information Systems Agency had not identified a Global Command and Control System baseline that would be in use at all user locations, with all segments successfully tested by the Defense Information Systems Agency and also tested at least twice in end-to-end tests or unified command operational evaluations, and with all external system interfaces independently tested, before transitioning into the year 2000. As a result of management comments, we deleted the recommendation pertaining to training for JOPES planners. We request that the Defense Information Systems Agency reconsider its positions and provide comments on the final report by November 24, 1999. The Joint Staff and U.S. Transportation Command comments were responsive.

Table of Contents

Executive Summary	i
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Introduction

Background	1
Objectives	2

Findings

A. Year 2000 Status of the Joint Operation Planning and Execution System	3
B. Adequacy of Contingency Planning for the Joint Operation Planning and Execution System	16

Appendixes

A. Audit Process	
Scope	24
Methodology	25
Summary of Prior Coverage	25
B. Joint Operation Planning and Execution System Planning Procedures	26
C. Joint Operation Planning and Execution System Collaborative Process	27
D. External System Interface Descriptions and Year 2000 Compliance Review Status	28
E. Report Distribution	33

Management Comments

U.S. Transportation Command	37
Defense Information Systems Agency	40
Joint Staff	47

Background

Joint Operation Planning and Execution System. The Joint Operation Planning and Execution System (JOPES) is the integrated, joint, conventional command and control system used by the joint planning and execution community¹ to conduct joint planning, execution (including theater-level nuclear and chemical plans), and monitoring activities. JOPES supports senior-level decisionmakers and their staffs at the National Command Authority level and throughout the joint planning and execution community. Combatant commanders use JOPES to assist them in determining the best course of action to accomplish assigned tasks and in directing the actions necessary to accomplish the mission.

JOPES consists of a number of separate applications, or segments, that are integrated to work together. The JOPES segments share a common database referred to as the JOPES Core database. The JOPES Core database consists of reference files and operation plans data.

During peacetime, unified commands use JOPES for deliberate planning to produce operation plans² and concept plans.³ In crises, unified commands use JOPES for crisis action planning.⁴ During operations, JOPES supports effective execution and management across the spectrum of mobilization, deployment, employment, and sustainment. See Appendix B for a discussion of deliberate planning versus crisis action planning.

Military planners base JOPES planning on requirements and existing capabilities to fulfill requirements. They compare supported combatant command requests with forces and resources available within designated time frames. The JOPES Core database contains information on military personnel and equipment with specific transportation requirements, maintenance requirements, and sustained support requirements. JOPES allows military planners to identify available military assets and all ancillary support requirements necessary to fulfill a combatant commander's request for forces efficiently and accurately. Appendix C illustrates the JOPES collaborative process.

¹Consists of the Joint Staff, Services, Service major commands, unified commands, sub-unified commands, transportation component commands, joint task forces, Defense Logistics Agency, and other Defense agencies as appropriate to a given scenario.

²A plan for the conduct of joint operations that can be used as a basis for development of operation orders.

³A concept plan is an operation plan in an abbreviated format that contains the unified command's strategic concept.

⁴Crisis action planning is the process used to develop time-sensitive joint operation plans and orders in response to an imminent crisis.

Global Command and Control System. The Global Command and Control System (GCCS) provides global command and control capability to the Joint Chiefs of Staff and warfighting commanders in chief. It supports forces for joint and combined operations throughout the spectrum of conflict anytime and anywhere in the world with compatible, interoperable, and integrated systems. JOPES is an essential mission application within GCCS that provides force planning and operations support. The Defense Information Systems Agency is the system administrator for GCCS and JOPES.

DoD Year 2000 Management Plan. In his role as the DoD Chief Information Officer, the Senior Civilian Official in the Office of the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) is coordinating the overall DoD year 2000 (Y2K) conversion effort. The "DoD Year 2000 Management Plan, Version 2.0" (DoD Management Plan), December 1998, revised June 8, 1999, provides direction and assigns DoD Components responsibility for implementing the five-phase Y2K management process. The goal of the DoD Y2K program is to ensure the continuance of a mission-capable force able to execute the national military strategy before, on, and after January 1, 2000, unaffected by the inability of mission-critical or support systems to properly process date-related information.

Objectives

The overall objective was to evaluate whether DoD adequately planned for and managed Y2K risks to avoid problems in planning and executing mobilization, deployment, employment, and sustainment activities associated with military operations. Specifically, we evaluated whether DoD assessed the mission criticality and Y2K compliance of the operational planning information systems and developed end-to-end tests and contingency plans for those systems. See Appendix A for a discussion of the audit scope and methodology and a summary of prior coverage.

A. Year 2000 Status of the Joint Operation Planning and Execution System

The Defense Information Systems Agency certified GCCS and, therefore, JOPES at assurance level 2a, fully Y2K compliant, in December 1998 without testing all external system electronic interfaces and without a complete Y2K memorandum of agreement with the Marine Air-Ground Task Force II program office. In addition, JOPES tests revealed ambiguous display and printing of dates and JOPES segments contained commercial off-the-shelf software that was not Y2K compliant. The Defense Information Systems Agency incorrectly certified GCCS as fully compliant because the agency did not comply with the DoD Management Plan when completing the certification process and it internally assessed the identified JOPES Y2K problems as minor system errors with minimal impact. However, the Defense Information Systems Agency could not gauge the cumulative effect of the JOPES Y2K problems because the agency had not identified a static JOPES baseline. As a result, the level of Y2K certification for JOPES was incorrect and the system was at an increased risk of not being able to continue operations in the event of a Y2K disruption.

Year 2000 Certification

The Defense Information Systems Agency certified GCCS and, therefore, JOPES as fully Y2K compliant in December 1998. However, the certification was completed without testing all external system electronic interfaces and without a complete Y2K memorandum of agreement with the Marine Air-Ground Task Force (MAGTF) II program office. The Defense Information Systems Agency incorrectly certified GCCS as fully compliant because the agency did not comply with the DoD Management Plan when completing the certification process.

JOPES Certification. The Deputy Director for Engineering and Interoperability, Defense Information Systems Agency (Deputy Director) certified GCCS as Y2K compliant at assurance level 2a on December 2, 1998. The certification was considered a certification of JOPES as well because the segments that constitute JOPES are contained within the overarching GCCS system. A level 2a Y2K compliance status indicates that an independent audit of system testing was completed using a 4-digit year format. An assurance level of 2a denotes that all external system interfaces were tested.

In February 1999, the Defense Information Systems Agency released GCCS 3.0.2 and certified that system at assurance level 2b, which means that the system had been independently audited and tested using a 2-digit year format and that there was a positive response to all questions on the Y2K Compliance

Checklist. In July 1999, the Defense Information Systems Agency released GCCS 3.0.3. In response to our draft report, Defense Information Systems Agency officials stated the compliance checklist for GCCS 3.0.3 had been prepared. Neither GCCS 3.0.2 nor GCCS 3.0.3 are reported in the DoD Y2K Reporting Database.

The Joint Interoperability Test Command⁵ validated the Defense Information Systems Agency GCCS Y2K Compliance Checklist that was completed before the release of GCCS 3.0.2. That validation satisfied testing criteria prescribed by Appendix G of the DoD Management Plan. On December 1, 1998, the Joint Interoperability Test Command recommended GCCS be certified Y2K compliant at assurance level 3d. The rationale was that not all external system interfaces were tested. A level 3d Y2K compliance status indicates a self-assessment was performed on the system but not all external interfaces of the system were tested or other Y2K-related problems were revealed.

On December 2, 1998, the Joint Interoperability Test Command Independent Year 2000 Validation Authority issued a letter that recommended GCCS be certified Y2K compliant at assurance level 1c. The change in recommended assurance level came after a telephone conversation between the supervisor of the Joint Interoperability Test Command Independent Year 2000 Validation Authority and the Deputy Director. The rationale as listed in the letter of recommendation was that GCCS had been independently tested. The letter also stated that date discrepancies had been found and documented and that workarounds had been identified, but that external interfaces remained to be tested. The DoD Management Plan does not contain a level 1c Y2K compliance status. The Deputy Director certified GCCS at level 2a.

External System Interfaces. The Joint Interoperability Test Command determined that there were 15 core interfaces belonging to GCCS that needed to be tested for Y2K compliance, including 6 systems having electronic interfaces with JOPES. Those systems having electronic interfaces that automatically feed planning data into JOPES are:

- the Computerized Movement Planning and Status System (COMPASS);
- the Contingency Operation/Mobility Planning and Execution System (COMPES);
- the Global Command and Control System-Army (GCCS-A);
- the Global Transportation Network (GTN);
- the Joint Flow and Analysis System for Transportation (JFAST); and
- the MAGTF II.

⁵A DoD organization that performs independent operational test and evaluation and assessments for the Defense Information Systems Agency and other DoD organizations.

COMPES, GTN, and JFAST interfaces were tested and were Y2K compliant. COMPASS, GCCS-A, and MAGTF II required interface testing. COMPASS is critical to the operation of JOPES because it is an Army system that transmits cargo, passenger, and other movement information through the JOPES external transaction processor, which validates the transactions, and updates the JOPES Core database. GCCS-A is critical to the operation of JOPES because it is an Army system that exchanges time-phased force and deployment data (TPFDD) between GCCS-A and JOPES. The JOPES external transaction processor receives and validates the GCCS-A data and updates the JOPES Core database with the validated data. JOPES and GCCS-A pass TPFDDs to one another through the JOPES System Services segment. GCCS-A and JOPES interpret noncompliant data, such as one-digit years used in Julian date format,⁶ by the use of a sliding window technique. MAGTF II is critical to the operation of JOPES because it is a Marine Corps system that provides planners with the ability to develop TPFDD airlift requirement information in an automated mode. Data transfer is a two-way interface using file transfers through the JOPES System Services segment.

In July 22, 1999, according to the Joint Interoperability Test Command, COMPASS, GCCS-A, and MAGTF II had not completed interface testing. As of October 5, 1999, according to the Joint Interoperability Test Command, COMPASS and GCCS-A had not completed interface testing with GCCS baseline 3.0.3. In May 1999, during the U.S. European Command operational evaluation, the interface between GCCS-A and JOPES failed. The U.S. European Command in its final report on the operational evaluation suggested that the GCCS-A program manager ensure that a software patch for GCCS-A be installed on all servers. As of July 30, 1999, a software patch for GCCS-A had been installed on all servers. Appendix D provides further information on reviews of external systems.

DoD Requirements. The DoD Management Plan, section A.4.5, describes the Y2K certification process. The process requires that the system developers, functional proponents, and maintainers certify and document each system's Y2K compliance. Appendix G of the DoD Management Plan contains a Y2K Compliance Checklist. The DoD Management Plan states that a certified system is a system that the system administrator has signed as Y2K compliant using the Y2K Compliance Checklist. The checklist has a section that specifically addresses external system interfaces.

The Y2K Compliance Checklist requires that the following external system interface information be verified before a system is certified as Y2K compliant.

- Interaction between the system being certified and any other external date source has been verified for correct operation.

⁶Both GCCS-A and JOPES use the Julian date format of YDDD.

-
- The responsible organization for each interface has negotiated an agreement dealing with Y2K issues.
 - Responsible organizations and the organization certifying a system have discussed and verified that consistent Y2K corrections have been implemented for date data passed between systems.

Y2K Interface Agreement. The memorandum of agreement between GCCS and MAGTF II was missing required information. "The Memorandum of Agreement between GCCS and MAGTF II, SUBJECT: Interface Agreement For Year 2000," June 30, 1998, states that 10 days after endorsement of the memorandum of agreement, specific information will be documented for both interface systems. Specifically, the missing information included:

- data sets and files sent and received;
- brief narrative description of interface;
- names of affected fields; and
- description of interface strategy, with target dates for major milestones.

Appendix F of the DoD Management Plan provides requirements for Y2K interface agreements. The purpose of Appendix F is to describe the need to identify system data exchange interfaces and to document agreements between system owners regarding data exchange formats and protocols. Interface agreements are required for interfaces between DoD Components. At a minimum, the agreements must contain:

- names of interfacing systems;
- description of interface;
- interface strategy for both sending and receiving systems;
- milestone dates for analysis, programming, testing, joint testing, and implementation; and
- review and acceptance process.

As of July 16, 1999, that information had not been documented in the memorandum of agreement between the GCCS and MAGTF II program offices. Although the interface agreement required for Y2K compliance was done, it did not contain all elements required by the DoD Management Plan.

JOPES Y2K-Related Problems

JOPES tests revealed ambiguous display and printing of dates in JOPES segments. Additionally, there were JOPES segments that contained commercial off-the-shelf software that was not Y2K compliant. The Defense Information Systems Agency incorrectly certified GCCS as fully compliant because the agency did not comply with the DoD Management Plan and it internally assessed the Y2K problems as minor system errors with minimal impact. The Defense Information Systems Agency was aware of the DoD Management Plan requirements, but felt that the plan was written for simpler systems than GCCS. The Defense Information Systems Agency stated that the GCCS segments affected either were not significant to the operation of GCCS or were scheduled to be replaced by newer segments. Therefore, according to Defense Information Systems Agency officials, GCCS could be certified as Y2K compliant. However, the Defense Information Systems Agency could not gauge the cumulative effect of the identified JOPES Y2K problems because the agency did not identify a static JOPES baseline. Segment tests and Joint Interoperability Test Command tests were conducted on GCCS 3.0.1, 3.0.2, and 3.0.3. End-to-end tests were conducted on GCCS 3.0.3 in August 1999. In addition, Stage II applications⁷ that are not considered part of GCCS 3.0.3 received the same testing as GCCS 3.0.3 segments.

Segment Tests. The GCCS Engineering Division, Defense Information Systems Agency, performed Y2K tests of the 20 segments⁸ identified as JOPES segments within GCCS baseline 3.0.2. The segment tests revealed that JOPES had problems displaying, printing, and sorting dates. Table 1 lists the segments with Y2K-related problems and the impact of the problems as determined by the Defense Information Systems Agency.

⁷Prototypes that are not scheduled to be part of GCCS until the year 2000.

⁸GCCS segments are parts of the system that can be considered separate program applications that work within the system with complete interoperability. We refer to the applications as segments to be consistent with GCCS test documents.

**Table 1. GCCS Engineering Division Test Results
(GCCS 3.0.2)**

<u>Segment</u>	<u>Impact</u>	<u>Y2K Problems</u>
External Transaction Processor (XTP)	Not measured	Two internal interfaces with the scheduling and movement interface were not tested.
Predefined Reports (PDR)	Minimal	Ambiguous date display on the Hewlett Packard system and a date-related software logic problem on the SUN Microsystems. Also, contains a noncompliant embedded software program, Gain Momentum.
Requirements Development and Analysis (RDA)	Minimal	The "type unit characteristics" date display was garbled.
	Not Measured	The "requirements development and analysis" window timeline display went blank during century rollover and there was a noncompliant embedded software program, Gain Momentum.
Time-Phased Force and Deployment Data and Editor (TPDATA/TPEDIT)	Minimal	An ordering problem with the records displayed caused "00" to come before "99".

Joint Interoperability Test Command Tests. The Joint Interoperability Test Command conducted a Y2K System Assessment of GCCS version 3.0.1 during the period from August 1998 through October 1998. During the assessment testing, Y2K problems were observed in different segments than those identified by the GCCS Engineering Division. Table 2 lists the problems identified by the Joint Interoperability Test Command and the impact of the problems as determined by the Joint Interoperability Test Command.

**Table 2. Joint Interoperability Test Command Test Results
(GCCS 3.0.1)**

<u>Segment</u>	<u>Impact</u>	<u>Y2K Problems</u>
Evacuation File Maintenance and Retrieval System (EVAC)	Minimal	The dates displayed for the year 2000 and beyond were incorrect.
Logistics Sustainment Analysis and Feasibility Estimator (LOGSAFE)	Moderate	Initial assessment was that the system could not be tested until January 9, 2000. Report later stated that tests were successful. It was not clear whether all assessment tests were completed.
JOPES Information Trace (JSIT)	Minimal	The date displayed on Hewlett Packard hardware was two digits and the date displayed on the SUN Microsystems hardware was four digits.
Predefined Reports Air Mobility Command Requirement Detail Report	Minimal	The C-day, or commencement of deployment day, number on report for all transition days was truncated.
Operation Plan Reloading (OPR)	Minimal	The initialization date coincided with the current system date when the report was reloaded into the system.
Operation Plan Distribution (OPD)	Minimal	The initialization date for the system receiving an operation plan was different from the actual date generated by the system sending it.

Display of Dates. The Defense Information Systems Agency certified GCCS as fully compliant although segment tests and assessment tests revealed segments of JOPES that displayed and printed ambiguous dates. Additionally, one segment sorted dates incorrectly. The Y2K Compliance Checklist requires the following information on the usage of internal dates to be verified before a system is certified as Y2K compliant:

- display of dates is clear and unambiguous;
- printing of dates is clear and unambiguous;
- input of dates is clear and unambiguous; and
- storage of dates is clear and unambiguous.

However, the GCCS Engineering Division and the Joint Interoperability Test Command found problems with ambiguous dates in the Evacuation File

Maintenance and Retrieval System segment, the JOPES Information Trace segment, the Predefined Reports segment, and the Requirements Development and Analysis segment. The Defense Information Systems Agency stated the segments affected were not significant to the operation of JOPES or would be replaced by newer segments. Therefore, the Defense Information Systems Agency certified GCCS as fully compliant.

Commercial Off-the-Shelf Software. JOPES contained two segments with noncompliant commercial off-the-shelf software. If commercial off-the-shelf software is used within a system, the Y2K Compliance Checklist requires that the software be verified as Y2K compliant. However, according to Defense Information Systems Agency officials, the Predefined Reports segment and the Requirements Development and Analysis segment contain embedded commercial off-the-shelf software that is not Y2K compliant. According to the DoD Management Plan, in order to keep noncompliant Y2K products on a mission-essential system after December 31, 1999, a waiver from the Y2K Oversight and Contingency Planning Office, Office of the Secretary of Defense, is required. The Defense Information Systems Agency has not obtained such a waiver for GCCS.

User Awareness. The Defense Information Systems Agency had not reported identified Y2K problems to JOPES users. Defense Information Systems Agency officials stated that they will make all GCCS Y2K problems and associated workarounds known to users through the Secret Internet Protocol Router Network web pages in December of 1999. However, if the user is not warned of known testing problems, the user is unaware that problems exist and is unable to plan and train for workarounds. System workarounds can only be effective if users know well in advance the areas where workarounds are necessary and have planned and trained for the procedures that will be in effect.

JOPES End-to-End Test. In August 1999, the Defense Information Systems Agency and the Joint Interoperability Test Command tested GCCS as part of their end-to-end test schedule. The version tested was GCCS 3.0.3. Defense Information Systems Agency officials stated that solutions to some of the identified Y2K problems rely on segments that are not part of GCCS 3.0.3. For example, the JOPES Editing Tool, which is referred to as a Stage II application, replaced the need for the Predefined Reports and the Requirements Development and Analysis segments. The JOPES Editing Tool has been fielded to JOPES users and was tested the same as a GCCS 3.0.3 segment. The Predefined Reports and Requirements Development and Analysis segments were tested as part of the GCCS 3.0.3 baseline, although many JOPES users no longer use those segments. Additionally, the Predefined Reports and Requirements Development and Analysis segments contain embedded commercial off-the-shelf software that is not Y2K compliant. The Chief Engineer, GCCS Engineering Division, stated that it was not cost-effective to replace the software with expensive, newer commercial off-the-shelf software that is Y2K compliant.

GCCS Baseline. Because the Defense Information Systems Agency had not established a static GCCS baseline that will transition into the year 2000, it is difficult to judge the cumulative effect of the problems identified during Y2K testing. In addition, as different baselines were tested, different problems were

identified. Although it is important that the best, most efficient automated command and control system available support the warfighter, it is just as important that the command and control system in use be totally reliable and that the warfighter is confident that a thoroughly tested baseline system will transition into the year 2000.

Conclusion

The level of Y2K certification for JOPES was incorrect and the system was at an increased risk of not being able to continue operations in the event of a Y2K disruption. The Defense Information Systems Agency incorrectly certified GCCS as Y2K compliant at assurance level 2a on December 2, 1998. GCCS should be certified Y2K compliant at assurance level 3d, which denotes that Y2K problems were identified or that all interfaces were not tested.

Extensive testing of JOPES segments revealed Y2K problems that could affect DoD operations. JOPES was not fully Y2K compliant and should not be certified as such until all external interfaces have been tested and all interface agreements have been adequately completed. In addition, the cumulative effect of the Y2K problems identified cannot be determined because a static baseline of JOPES segments scheduled to transition into year 2000 does not exist. The Defense Information Systems Agency needs to establish a specific JOPES baseline that will allow for an easy transition into the year 2000, with all Y2K problems associated with that baseline either fixed or clearly communicated to JOPES users well in advance of the new year.

Management Comments on the Finding and Audit Response

Defense Information Systems Agency Comments. The Defense Information Systems Agency disagreed that JOPES had been certified at an incorrect assurance level. The Defense Information Systems Agency comments on assurance level are summarized in the Recommendations, Management Comments, and Audit Response section of the report.

The Defense Information Systems Agency disagreed that because it had not identified a static JOPES baseline that would transition into the new year the cumulative effect of JOPES Y2K problems could not be gauged. The Defense Information Systems Agency stated that GCCS 3.0.1 established a Y2K compliant baseline that would have transitioned across the millennium with minimum operational impact. GCCS 3.0.2 added 20 segments to the 3.0.1 baseline. GCCS 3.0.3 added 70 segments to the baseline. Each version was tested and certified Y2K compliant before it was released. The Defense Information Systems Agency clarified that segment and Joint Interoperability Test Command testing was completed on GCCS 3.0.1, 3.0.2, and 3.0.3, not only 3.0.1 and 3.0.2 as reported in the finding. The Defense Information

Systems Agency stated that the developer tested each segment and delivered it to the Defense Information Systems Agency's Center For Integration for integration and testing. The Joint Interoperability Test Command conducted functional testing and then the Center For Integration conducted integration and Y2K testing. If the Joint Interoperability Test Command functional tests and the Center For Integration Y2K and integration testing are successful, a system version release is established and given to the Joint Interoperability Test Command for an independent Y2K assessment. That process was followed for GCCS 3.0.1, 3.0.2, and 3.0.3. The Joint Interoperability Test Command conducted an independent test of 3.0.1, independently audited the Center For Integration tests for 3.0.2, and independently tested 3.0.3. The Defense Information Systems Agency and the Joint Interoperability Test Command conducted end-to-end testing in August 1999 that was designed to give the Defense Information Systems Agency and the operational community additional confidence in the interfaces on the 3.0.3 version. The Defense Information Systems Agency stated that Stage II applications went through the same level of testing as the baseline, to include developer testing, Joint Interoperability Test Command functional testing, Center For Integration integration and Y2K testing, and Joint Interoperability Test Command Y2K testing. The JOPES Editing Tool was included in end-to-end testing, and no Y2K anomalies were discovered.

Audit Response. GCCS 3.0.3 corrected some of the Y2K-related problems that existed within GCCS 3.0.1. and 3.0.2. However, because the Defense Information Systems Agency has not stated which fully tested baseline will transition into the new year, the cumulative effect of different problems in different baselines cannot be gauged. Since our draft report was issued, the Deputy Secretary of Defense issued stringent limitations on configuration changes to Y2K-compliant systems that are mission critical and identified on unified command thin lines, such as GCCS, in his memorandum of August 20, 1999, "Limitation on Configuration Changes to Y2K-Compliant Systems." The release of new system capabilities in the current Y2K atmosphere necessitates additional Y2K tests not only on GCCS, but on systems such as GCCS-A that had to make changes due to the changes in the new GCCS baseline. We are not confident that sufficient additional testing has occurred since the Defense Information Systems Agency released two new baselines in a 6-month period. As a result of management comments, we revised the draft report to reflect that Joint Interoperability Test Command independent Y2K assessments were performed on GCCS 3.0.3 and that Stage II applications received the same level of testing as GCCS baselines and were included in the August 1999 end-to-end tests.

Recommendations, Management Comments, and Audit Response

A. We recommend that the Director, Defense Information Systems Agency:

1. Properly report the Global Command and Control System as certified at assurance level 3d until all external interfaces are tested and all repairs are made or workarounds identified for the baseline that will transition into the year 2000.

Management Comments. The Defense Information Systems Agency nonconcurred, although it agreed that the originally reported assurance level 2a was not correct. However, the Defense Information Systems Agency stated that the GCCS should be certified as level 1b because interfaces had been tested and all known Y2K problems with JOPES segments either had been fixed or operational workarounds had been established.

Audit Response. The Defense Information Systems Agency comments are not responsive. As of October 5, 1999, the Joint Interoperability Test Command had not certified the interfaces with GCCS 3.0.3 for COMPASS, GCCS-A, or GTN. Therefore, GCCS 3.0.3 and JOPES cannot be assigned an assurance level higher than level 3d in accordance with the DoD Management Plan. In addition, JOPES has embedded software that is not Y2K compliant. In accordance with the DoD Management Plan, the Defense Information Systems Agency must request a waiver from the Y2K Oversight and Contingency Planning Office, Office of the Secretary of Defense, in order to keep noncompliant embedded software on GCCS after December 31, 1999. We request that the Defense Information Systems Agency reconsider its position on the GCCS assurance level and provide additional comments in response to the final report.

2. Verify that the electronic interfaces between the Joint Operation Planning and Execution System and the Computerized Movement Planning and Status System, the Global Command and Control System-Army, and the Marine Air-Ground Task Force II are tested.

Management Comments. The Defense Information Systems Agency concurred but indicated that no corrective action was necessary to verify that electronic interfaces between JOPES and COMPASS, GCCS-A, and MAGTF II were tested. The Defense Information Systems Agency stated that the Center For Integration had tested the MAGTF II interface in September 1998 and that the Center For Integration had tested the GCCS-A and COMPASS interfaces in November 1998. GCCS-A and COMPASS interfaces with GCCS were successfully tested during the U.S. European Command operational evaluation. GCCS-A, COMPASS, and MAGTF II interfaces with GCCS were successfully tested during the U.S. Atlantic Command (now the U.S. Joint Services Command) operational evaluation. However, the agency stated that the Joint Interoperability Test Command was not given sufficient test information and

documentation to recommend certification of the interfaces. The agency stated that all interfaces were successfully tested on the 3.0.1 and 3.0.2 baselines and were in the process of being validated by the Joint Interoperability Test Command on the 3.0.3 baseline as a result of the end-to-end tests that concluded in August. GTN was being modified and would be ready to interface with GCCS during the October U.S. Transportation Command operational evaluation.

Audit Response. The Defense Information Systems Agency comments are partially responsive. As of October 5, 1999, the Joint Interoperability Test Command had not certified the interfaces with GCCS 3.0.3 for COMPASS, GCCS-A, or GTN. We request that the Defense Information Systems Agency reconsider its position and provide additional comments on whether GCCS 3.0.3 will have all electronic interfaces tested before the year 2000 transition.

3. Complete the memorandum of agreement between the Global Command and Control System and the Marine Air-Ground Task Force II ensuring all required information is contained within the agreement prior to required interface testing.

Management Comments. The Defense Information Systems Agency concurred. The completed memorandum of agreement between GCCS and the MAGTF II program office was signed September 8, 1999.

4. Communicate to all users of the Joint Operation Planning and Execution System the results of year 2000 tests on the transition baseline.

Management Comments. The Defense Information Systems Agency concurred, stating that the results of Y2K tests on the transition baseline would be posted on the GCCS Secret Internet Protocol Router Network home page on October 1, 1999.

5. Establish a Global Command and Control System baseline that will transition into the year 2000 and conduct all remaining year 2000 tests, including end-to-end tests, on that baseline.

Management Comments. The Defense Information Systems Agency concurred, stating that necessary actions had been completed, which showed that GCCS 3.0.1 will transition through the year 2000 successfully and that GCCS 3.0.2 and 3.0.3 added new mission-critical functionality, enhanced GCCS security, and eliminated the need for some of the operational workarounds. The Defense Information Systems Agency stated that GCCS 3.0.2 and 3.0.3, like 3.0.1, will transition through the year 2000 successfully.

Audit Response. The Defense Information Systems Agency comments are partially responsive. The Defense Information Systems Agency had not identified a GCCS baseline that would be in use at all user locations, with all segments successfully tested by the Defense Information Systems Agency and also tested at least twice in end-to-end tests or unified command operational evaluations, and with all external system interfaces independently tested, before

transitioning into the year 2000. The Defense Information Systems Agency response does not state that a baseline that will transition into year 2000 was established. The Defense Information Systems Agency comments state that GCCS 3.0.1 would have transitioned across the millennium with minimum operational impact and that GCCS 3.0.2 and 3.0.3 will transition through the year 2000 successfully, but does not state that all required testing will be completed on GCCS 3.0.2 and 3.0.3 before the year 2000 transition. We request the Defense Information Systems Agency clarify its position and provide additional comments in response to the final report.

B. Adequacy of Contingency Planning for the Joint Operation Planning and Execution System

The Defense Information Systems Agency prepared a JOPES system contingency plan that met DoD Management Plan requirements; however, the Joint Staff did not have a complete Y2K operational contingency plan for crisis action planning and operations support in the event of a failure because of Y2K problems. The JOPES operational contingency plan did not comply with DoD Management Plan guidance. In addition, the JOPES operational contingency plan and the unified command operational contingency plans do not address procedures specific to the unified commands, to include airlift and sealift requirements, for transitioning into the year 2000. Without complete operational contingency plans, the DoD ability to respond to military crises in a timely manner was reduced and there was increased risk that DoD will not have adequate alternative ways to quickly respond to combatant command requests for equipment or personnel.

DoD Management Plan Criteria

The DoD Management Plan contains requirements, guidelines, and recommendations for DoD Components related to contingency planning for potential Y2K problems. The DoD Management Plan recognizes that despite efforts to ensure that systems will function properly in the year 2000, systems or infrastructures that support systems may fail and the failures could adversely affect other systems. Therefore, the DoD Management Plan requires that DoD Components develop contingency plans for mission-critical systems. Contingency plans are intended to minimize the adverse effects of disruptions and ensure that there are alternative ways to maintain continuity of operational capability.

Contingency planning is a mechanism to develop workarounds, find alternative ways to satisfy requirements, put in place manual processes that bridge the capability gap threatened by an outage, and prepare to continue business in spite of potentially dramatic and sustained outages of key systems. The DoD Management Plan identifies two types of contingency plans – system and operational.

System Contingency Plans. System administrators and work group managers are responsible for preparing system contingency plans. System contingency plans address the activities that are to be performed by system administrators and work group managers to preserve and protect the system and data before, during, and after a Y2K-related problem. System-related Y2K problems include system failures, corruption of data from internal or external sources, power failures, and loss of communications. System contingency plans should identify

procedures for restoring data from backups, for switching to back-up systems or sites, or for operating in degraded modes. The DoD Management Plan required DoD Components to develop system contingency plans by December 30, 1998.

Operational Contingency Plans. Operational contingency plans address the activities that operational commanders and system users should perform before, during, and after a Y2K-related failure to ensure uninterrupted mission capability. Operational commanders and system users, including the Joint Chiefs of Staff, are responsible for developing operational contingency plans. Operational contingency plans are the primary management tools used for unanticipated disruptions, such as loss of power, environmental control systems, and communications services. Operational contingency plans should identify procedures for switching to alternative systems or locations to perform an assigned mission or function without interruption. The DoD Management Plan required DoD Components to develop operational contingency plans for mission-critical systems by March 31, 1999.

JOPES System Contingency Plan

The Defense Information Systems Agency-prepared GCCS Year 2000 System Contingency Plan, version 1.0, March 31, 1999, met DoD Management Plan requirements. The GCCS system contingency plan was considered a JOPES contingency plan as well because the segments that constitute JOPES are contained within the overarching GCCS system. The plan identified system risks and risk impacts, mitigation strategies, actions to be taken upon system degradation or failure, and responsibilities for updating and evaluating the plan. The plan recommended pre-contingency strategies to protect JOPES, steps to execute the contingency plan, restoration procedures for common media failures, and post-contingency procedures to return to normal operations; the plan also identified database failure conditions. The contents of the GCCS system contingency plan will mitigate the risk that joint operational planning data will not be available to users.

Joint Staff Y2K Operational Contingency Plan

The Joint Staff did not have a complete Y2K operational contingency plan for the joint operational planning function. The JOPES operational contingency plan did not comply with the DoD Management Plan, because the plan was not complete and did not contain specific procedures to follow in the event of a JOPES Y2K failure. The joint operational planning function includes peacetime planning, crisis response, and operations support.

GCCS Operational Contingency Plan. The Joint Staff-prepared GCCS Year 2000 Operational Contingency Plan, version 2.0, June 11, 1999, which includes JOPES, satisfied some of the contingency plan requirements demanded of

mission-critical functions. The GCCS Operational Contingency Plan documented the critical mission, the systems that support that mission, emergency notification procedures to report loss or degradation of system functionality to maintainers and developers, and procedures to execute the mission functions without the assistance of the systems normally used to support the mission.

In the event of a Y2K-related JOPES database failure, the GCCS Operational Contingency Plan suggested that an alternative JOPES database be used.⁹ However, the plan made no specific provisions for the potential failure of all JOPES databases. The Joint Staff prescribed the use of Secret Internet Protocol Router Network e-mail, secure fax, and secure telephone as alternatives, but did not offer guidance on how to orchestrate operations. The plan delegated responsibility for specific operational contingency plans to the unified commands.

However, the Joint Staff-prepared GCCS Operational Contingency Plan did not address all criteria prescribed by the DoD Management Plan. The DoD Management Plan requires Y2K operational contingency plans for each mission-critical function and the systems that support those functions. The DoD Y2K Reporting Database lists JOPES as a mission-critical system. Because it is a mission-critical system, JOPES requires a comprehensive contingency plan for unanticipated disruptions. However, the following required components were absent from the GCCS Operational Contingency Plan:

- procedures for JOPES users to detect possible corrupt system data;
- a list of alternative suppliers for the mission-critical support (such as electricity and phone service) that the perceived Y2K worst-case scenario indicates may be unavailable or mission-limiting;
- impact that the loss of JOPES will have upon the mission; and
- procedures to restore data collected by alternative means into the corrected or restored system.

The GCCS Operational Contingency Plan did not provide comprehensive contingency guidance for the joint operational planning function. Though the plan suggests that alternative JOPES database sites be used to mitigate the impact of a single JOPES database failure, it does not describe procedures to divert operations to the use of another database. Additionally, the plan delegates responsibility for determining the specific procedures to satisfy JOPES mission requirements and the procedures to restore data to unified command JOPES functional managers.

⁹There are 16 JOPES database sites worldwide.

Command Y2K Operational Contingency Plans

JOPES functional managers at the unified and Component commands did not have complete Y2K operational contingency plans. Unified command operational contingency plans were incomplete because they only reiterated the general recommendations made in the GCCS Operational Contingency Plan – that personnel would rely on Secret Internet Protocol Router Network e-mail, secure fax, and secure telephone. The functional managers did not document alternative procedures for the possibility of infrastructure failures. Further, they did not prescribe procedures to restore data to the JOPES databases.

Combatant Commands. We contacted three combatant commands, the U.S. Central Command, the U.S. European Command, and the U.S. Pacific Command, to determine how they used JOPES and to determine the status of their Y2K operational contingency plans.

U.S. Central Command. Officials at the U.S. Central Command stated that they use JOPES to develop campaign plans,¹⁰ operation plans, operation orders, and strategy. The U.S. Central Command had a JOPES operational contingency plan that was not Y2K specific. The contingency plan mainly consisted of a plan to use Netscape Newsgroups, the Secret Internet Protocol Router Network, secure fax, and secure telephones in the event of a JOPES failure. In order to establish a knowledge base in case JOPES fails, the U.S. Central Command operational contingency plan contained a provision in the event of a Secret Internet Protocol Router Network failure to train JOPES planners to become adept at conducting local operation plans and TPFDD analysis. However, the U.S. Central Command contingency plan lacked specific procedures to safeguard the joint operational planning function in the event of a Y2K-related disruption. The plan did not document alternative procedures for the possibility of infrastructure failures and did not prescribe procedures to restore data to the JOPES databases.

U.S. European Command. Officials at the U.S. European Command stated that they use JOPES in accordance with the Chairman Joint Chiefs of Staff Manual 3122.03, "Joint Operation Planning and Execution System," June 1, 1996. The U.S. European Command did not have any formal operational contingency plans, but stated that when JOPES was inoperable, it used Netscape Newsgroups, the Secret Internet Protocol Router Network, secure fax, and secure telephones. To be in compliance with Joint Staff direction, the U.S. European Command needed to develop a contingency plan that addresses procedures to be used in the event of a Y2K-related JOPES failure.

U.S. Pacific Command. Officials at the U.S. Pacific Command stated that they use JOPES to identify forces and to develop a concept of operations to deploy and employ U.S. military forces. They use the data systems in JOPES

¹⁰A plan for a series of related military operations aimed at accomplishing a strategic or operational objective within a given time and space.

to support the planning process and the military decisionmaking process. The U.S. Pacific Command had a JOPES operational contingency plan that was not Y2K specific. The operational contingency plan mainly consisted of a plan to use secure fax and secure telephones in the event of a JOPES failure; however, the plan also included using messengers with hand-carried information if all else fails. The U.S. Pacific Command contingency plan lacked specific procedures. It did not document alternative procedures for the possibility of infrastructure failures and did not prescribe procedures to restore data to the JOPES databases.

U.S. Army Forces Command. The U.S. Army Forces Command is the Army Component of the U.S. Joint Forces Command (formerly the U.S. Atlantic Command). It trains, mobilizes, deploys, and sustains combat forces capable of responding rapidly to crises worldwide and fighting as a joint team. The U.S. Army Forces Command can be considered a warehouse of Army resources that are extracted through JOPES. For example, when the U.S. European Command requires an additional Army battalion, the U.S. European Command contacts the U.S. Joint Forces Command, which in turn contacts its Army Component, the U.S. Army Forces Command. The U.S. Army Forces Command then identifies a suitable unit and notifies the U.S. European Command that it will deploy the identified unit. The U.S. Army Forces Command plans for and ultimately deploys the unit. JOPES is the cornerstone system in that process.

The U.S. Army Forces Command did not have an operational contingency plan addressing the loss of JOPES. U.S. Army Forces Command personnel stated that without JOPES, the U.S. Army Forces Command would likely consolidate forces at certain locations and use fax and telephone capabilities to communicate orders. Such a preemptive measure would require an extensive effort to accomplish. Therefore, the Joint Staff and the U.S. Joint Forces Command should consider whether to include specific steps in a U.S. Joint Forces Command operational contingency plan to accomplish the consolidation of Army forces at certain locations if JOPES fails because of Y2K-related problems.

U.S. Transportation Command. Officials at the U.S. Transportation Command stated that they use the TPFDD contained in JOPES to determine how best to transport goods to support mission requirements based on need date and other transportation factors. For example, after reviewing the TPFDD for goods with a required 30-day delivery, the U.S. Transportation Command would determine whether to ship the goods by air or sea, based on the need date and current traffic movement. The U.S. Transportation Command would contact the holder of the goods to schedule the mode of transportation. The U.S. Transportation Command performs the same role under crisis and deliberate planning scenarios. The U.S. Transportation Command had informal written contingency plans to cover two Y2K scenarios.

Loss of Force Validation Tool. The first Y2K scenario was to ensure continued receipt and processing of transportation requirements from supported combatant commands during a major theater war, in the event that the Force Validation Tool segment of JOPES was lost because of Y2K problems. The Force Validation Tool is a prototype segment of JOPES that allows supported

combatant commands and the U.S. Transportation Command to agree on forces and equipment to be delivered and the methods by which they will be delivered. The contingency plan consisted mainly of replacing the function of the Force Validation Tool segment of JOPES by using communications through newsgroups to validate supported combatant command transportation requirements.

Loss of JOPES. The second Y2K scenario was to ensure continued receipt and processing of transportation requirements from supported combatant commands during a major theater war in the event that JOPES was inoperable because of Y2K problems. The contingency plan listed the responsibilities of many different personnel, but centered mainly on using file transfer protocols across secure telephone lines between supported commands, the U.S. Transportation Command, and U.S. Transportation Command Components. However to be effective, the plan relied on the U.S. Transportation Command being in possession of supported command requirements for the first 10 days of airlift and 30 days of sealift.

In support of the U.S. Transportation Command contingency plans, the unified commands should establish 10-day airlift and 30-day sealift requirements for active operations to transition smoothly into the year 2000. In case of Y2K disruption, an early establishment of combatant command TPFDD requirements for active operations would streamline the processing time required to identify and ship warfighting requirements without JOPES. Under standard procedures, the U.S. Transportation Command hosts conferences to confirm and deconflict resources to meet unified command airlift and sealift requirements. The combatant command identifies its requirement to the U.S. Transportation Command. The U.S. Transportation Command "sources," or identifies a resource that matches the requirement, and contacts the source command to confirm that the resource is available and to deconflict any previously scheduled plans for the resource. After that, the U.S. Transportation Command contacts the requesting combatant command to verify, or validate, that the sourced assets meet the requirement. When those steps are completed, the U.S. Transportation Command arranges for the transportation of the assets. Using JOPES, the process is not difficult. Sourced, confirmed, validated, and transported, in that order, are status codes for requested resources within the JOPES system. However, without JOPES and with unreliable communications in a worst-case Y2K scenario, sourcing, confirming, and validating resources would be time-consuming and inefficient. The early establishment of requirements by combatant commanders would ensure that the efficient support of active operations by the U.S. Transportation Command continues through the Y2K transition.

The Effect on Joint Operational Planning

Without complete operational contingency plans for JOPES, the DoD ability to respond to military crises in a timely manner was reduced and there was an increased risk that DoD will not have alternative methods to quickly respond to combatant command requests for equipment and personnel. JOPES is the

foundation for conventional command and control. Therefore, it is a likely target for information warfare attacks. It is imperative that the unified commands have complete operational contingency plans to allay the problems triggered by a JOPES failure caused by either Y2K-related problems or by information warfare attacks. Without adequate contingency plans, the National Command Authorities and the Chairman of the Joint Chiefs of Staff may not be able to effectively communicate or coordinate joint military planning operations in the year 2000.

Recommendations, Management Comments, and Audit Response

Deleted and Renumbered Recommendations. As a result of management comments, we deleted draft Recommendation B.1.b.(2) and the corresponding paragraph in the draft finding discussion. Draft Recommendation B.1.b.(3) has been renumbered as Recommendation B.1.b.(2).

B.1. We recommend that the Director, Joint Staff:

a. Revise the operational contingency plan for the Global Command and Control System to incorporate the requirements of the DoD Year 2000 Management Plan.

Joint Staff Comments. The Joint Staff concurred, stating that it would revise the GCCS Operational Contingency Plan to include Y2K as a potential cause of failure of all JOPES databases, specific guidance for orchestrating National Military Command Center crisis action procedures, specific instances to check for detection of data corrupted by Y2K-related failures, a statement outlining possible impacts during various types of missions, procedures for sites to restore data to a corrected or restored system, and a description of procedures for using database select capabilities within JOPES to divert operations to another database if necessary.

b. Direct the unified commands to:

(1) Prepare complete Joint Operation Planning and Execution System Year 2000 operational contingency plans applicable to each unified command's requirements.

Joint Staff Comments. The Joint Staff concurred, stating that a message from the Joint Staff directing the unified commands to prepare JOPES operational contingency plans was being coordinated for release. The message emphasizes that the operational contingency plans must be interoperable among the unified commands, Services, and Defense agencies as JOPES is a national system.

(2) Establish 10-day airlift and 30-day sealift time-phased force and deployment data requirements for active operations to transition to the year 2000.

Joint Staff Comments. The Joint Staff concurred, stating that it currently validates airlift and sealift requirements for up to 7 and 30 days, respectively, for active operations. The Joint Staff will extend the validation window to 10 days for airlift to sustain support for active operations during the critical Y2K periods.

B.2. We recommend that the Commander in Chief, U.S. Transportation Command:

a. Identify resources to meet early time-phased force and deployment data requirements submitted by unified commands.

b. Host conferences to confirm and deconflict resources to meet unified command airlift and sealift transportation requirements.

c. Provide applicable unified commands with resourced time-phased force and deployment data based on strategic resources allocated to support the deployment.

U.S. Transportation Command Comments. The U.S. Transportation Command concurred with the recommendations, provided that the word "resources" in Recommendation B.2.a. is defined as transportation assets, that the word "resources" in Recommendation B.2.b. is defined as actual units' sourcing requirements, and that use of conferences is scenario dependent. The U.S. Transportation Command also stated that it would, in response to Recommendation B.2.c., provide time-phased force and deployment data closure estimates based on strategic resources allocated to support the deployment, per crisis action procedures. The U.S. Transportation Command noted that the recommended actions will be applied only to active operations during the Y2K transition period.

Audit Response. The U.S. Transportation comments are responsive to the intent of the recommendations.

Appendix A. Audit Process

This is one in a series of reports being issued by the Inspector General, DoD, in accordance with an informal partnership with the Chief Information Officer, DoD, to monitor DoD efforts to address the Y2K computing challenge. For a listing of audit projects addressing the issue, see the Y2K web pages on IGnet at <http://www.ignet.gov>.

Scope

We reviewed and evaluated whether DoD assessed the mission criticality and Y2K compliance of the joint operational planning information systems and developed end-to-end tests and contingency plans for those systems. We visited the Defense Information Systems Agency, the U.S. Army Forces Command, and the U.S. Transportation Command to obtain a functional overview of JOPEs. We contacted and sent questionnaires to the JOPEs functional managers of the U.S. Central Command, the U.S. European Command, and the U.S. Pacific Command. We reviewed JOPEs interface agreements, segment test reports, contingency plans, and system Y2K certifications. We reviewed the Joint Interoperability Test Command Y2K System Assessment Report, the GCCS Y2K Pre-Operational Evaluation Report, and the GCCS Y2K Operational Evaluation. The documentation we reviewed covered the period of February 1998 through September 1999.

DoD-Wide Corporate-Level Goals. In response to the Government Performance and Results Act, DoD established 2 DoD-wide goals and 7 subordinate performance goals. This report pertains to achievement of the following goal and subordinate performance goal.

Goal 2: Prepare now for an uncertain future by pursuing a focused modernization effort that maintains U.S. qualitative superiority in key warfighting capabilities. Transform the force by exploiting the Revolution in Military Affairs, and reengineer the Department to achieve 21st century infrastructure. **Performance Goal 2.2:** Transform U.S. military forces for the future. (00-DoD-2.2)

DoD Functional Area Reform Goals. Most major DoD functional areas have also established performance improvement reform objectives and goals. This report pertains to achievement of the following objectives and goals in the Information Technology Management Functional Area.

- **Objective:** Become a mission partner. **Goal:** Serve mission information users as customers. (ITM-1.2)

-
- **Objective:** Provide services that satisfy customer information needs.
Goal: Modernize and integrate DoD information infrastructure.
(ITM 2.2)
 - **Objective:** Provide services that satisfy customer information needs.
Goal: Upgrade technology base. (ITM-2.3)

High-Risk Area. In its identification of risk areas, the General Accounting Office has specifically designated risks in resolution of Y2K problems as high. This report provides coverage of that problem.

Methodology

Audit Type, Dates, and Standards. We performed this program audit from April through July 1999 in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD. We did not use computer-processed data to perform this audit.

Contacts During the Audit. We visited or contacted individuals and organizations within DoD. Further details are available upon request.

Management Control Program. We did not review the management control program related to the overall audit objective because DoD recognized the Y2K issue as a material management control weakness area in the FY 1998 Annual Statement of Assurance.

Summary of Prior Coverage

The General Accounting Office and the Inspector General, DoD, have conducted multiple reviews related to Y2K issues. General Accounting Office reports can be accessed over the Internet at <http://www.gao.gov>. Inspector General, DoD, reports can be accessed over the Internet at <http://www.dodig.osd.mil>.

Appendix D discusses systems other than JOPES that are used for joint operational planning and recent audits of those systems.

Appendix B. JOPES Planning Procedures

The joint planning and execution community uses JOPES to conduct crisis action planning and deliberate planning. The following overall procedures are the same for crisis action planning and deliberate planning.

- Receive and analyze the task to be accomplished.
- Review the enemy situation and collect necessary intelligence.
- Develop and compare alternative courses of action.
- Select the best alternative.
- Develop and get approval for the plan concept.
- Prepare a plan.
- Document the plan.

The following figure illustrates the joint operation planning procedures for crisis action planning and deliberate planning.



Joint Operation Planning Procedures

of five basic steps: initiation, concept development, plan development, plan review, and supporting the plan. The deliberate planning process results in the creation of concept plans, functional plans, and operation plans.

Crisis Action Planning.

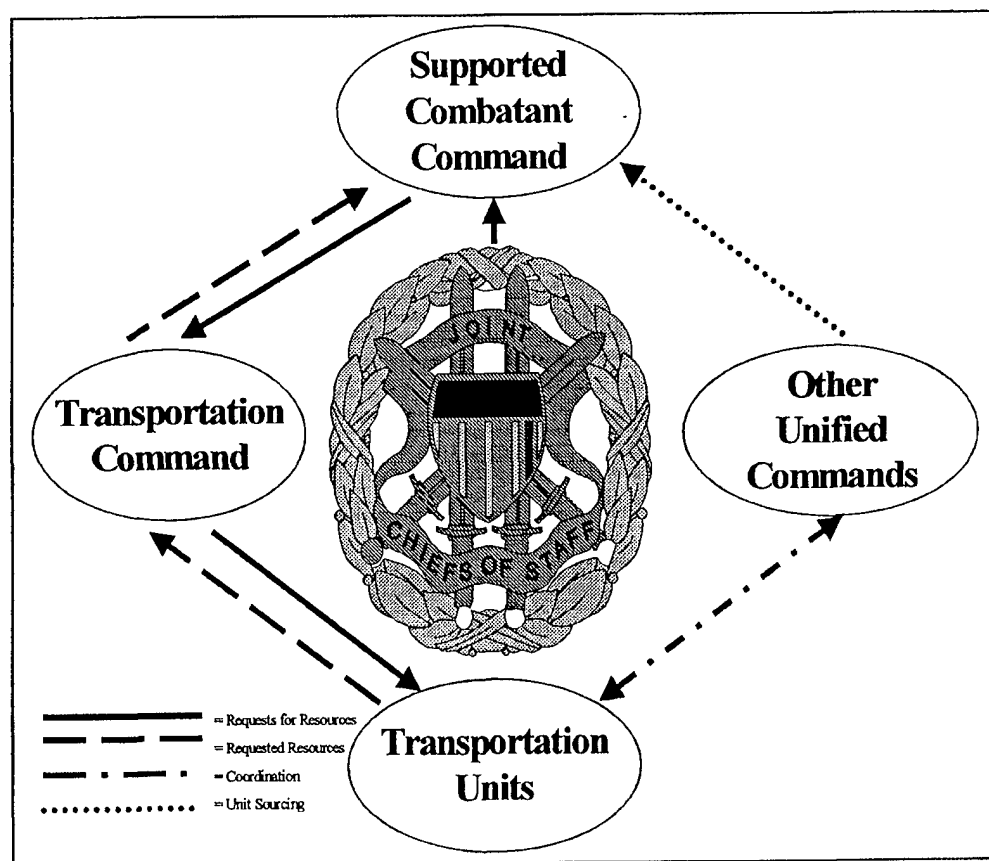
When the time available for planning is short and the near-term result is expected to be an actual deployment or employment of military forces, crisis action planning procedures are used. Crisis action planning involves six basic steps: situation development, crisis assessment, course of action development, course of action selection, execution planning, and execution. The crisis action planning process results in the creation of campaign plans and operation orders.

Deliberate Planning.

Deliberate planning is employed in peacetime when time is not a critical factor. Deliberate planning consists

Appendix C. JOPES Collaborative Process

The JOPES collaborative process is at the heart of operations support provided by JOPES. When an operation plan is active, there is a TPFDD supporting the operation with information on types of units and material to be delivered to the theater of operations. The TPFDD is updated with the requests of the applicable combatant commands. Support commands, such as the U.S. Transportation Command and the U.S. Joint Forces Command, use the TPFDD to fulfill the requests of the combatant commanders. For example, if a combatant commander requests additional units by updating the TPFDD, a support command, such as the U.S. Joint Forces Command, "sources," or identifies, a unit that matches the requirement. The U.S. Transportation Command takes the unit "sourced" on the TPFDD and, through U.S. Transportation Command Component commands, deploys the unit to the location of the requesting command. This collaborative process between the requesting command, the support command, and the U.S. Transportation Command can be done in minutes using JOPES. The following figure illustrates the process.



JOPES Collaborative Process

Appendix D. External System Interface Descriptions and Year 2000 Compliance Review Status

There are six additional systems besides JOPES used by DoD for joint operational planning. The six systems have electronic interfaces that automatically feed data into JOPES.

Computerized Movement Planning and Status System

COMPASS System Description. COMPASS is a Government off-the-shelf system that contains information pertaining to unit movement requirements for use in mobilization and deployment planning. The U.S. Army Forces Command uses COMPASS to provide the Military Traffic Management Command with accurate and timely unit movement requirements information. COMPASS contains an automated system that facilitates detailed reporting, furnishes quarterly updates, and provides quantities and detailed characteristics of authorized, on-hand, and deployed equipment within U.S. Army Forces Command units. Data transfer is a two-way interface, between JOPES and COMPASS. COMPASS passes nomenclature and characteristics of Army unit equipment distribution, automated unit equipment lists, and unit movement data to JOPES. COMPASS was certified Y2K compliant on October 30, 1998.

Y2K Compliance Review Status. Army Audit Agency Report No. AA 98-115, "Audit of Automated Information Systems - Year 2000 Forces Command," February 19, 1998, addressed COMPASS certification, contingency plans, and interface agreements. The report stated that COMPASS interface agreements were not in place with JOPES, GCCS-A, and GCCS. As a result, external testing with interface systems could not be completed. In addition, the U.S. Army Forces Command could not be assured that the COMPASS contingency plan was effective until all interfacing systems were tested. As the audit was performed at the request of management, management comments were not required and none were provided.

Contingency Operation/Mobility Planning Execution System

COMPES System Description. COMPES provides a standard automated data system of Air Force deployment operations, logistics, and manpower data from base level through Major Command headquarters, to the Joint Chiefs of Staff or unified command planning and reporting systems. It provides Air Force operation mobility planners the capability to deal with detailed movement requirements at all levels, to communicate the requirements, and to summarize

the detailed requirements into gross planning data. COMPES consists of five modules, three at the Major Command level and two at base level. COMPES provides Major Command operation planners with the capability to task Air Force combat and support units during contingency operations. Data is passed through a two-way interface between JOPEs and COMPES. JOPEs transmits Air Force requirements that require sourcing to COMPES; COMPES returns sourced units to JOPEs. COMPES was certified Y2K compliant on September 10, 1998.

Y2K Compliance Review Status. Inspector General, DoD, Report No. 99-213, "Year 2000 Compliance of Headquarters Standard Systems Group Selected Systems," July 14, 1999, addressed COMPES certification, contingency plans, and interface agreements. The report stated that COMPES program managers did not develop a contingency plan consistent with DoD policy. As a result, the plan was not effective in identifying actions to preserve and protect the system and data before, during, and after a Y2K-related failure. The Air Force partially concurred on the finding stating that Headquarters, Standard Systems Group, is working to improve all contingency plans, especially for mission-critical and mission-essential systems.

Global Command and Control System-Army

GCCS-A System Description. GCCS-A is a command and control system that operates in coordination with the DoD Global Command and Control System in support of military planning and execution. GCCS-A maintains descriptions of current and projected status of Armed Forces, selected resources, and plans that support the planning and execution of military operations. As of April 1, 1999, GCCS-A was listed as a Y2K certified mission-critical system in the DoD Y2K Reporting Database. GCCS-A was certified Y2K compliant on December 18, 1998.

Y2K Compliance Review Status. Inspector General, DoD, Report No. 99-197, "Status of Resources and Training System Year 2000 Issues," June 29, 1999, addressed GCCS-A certification, contingency plan, and interface agreements. The report stated that the system contingency plan for GCCS-A did not meet the standards set forth in the DoD Management plan. As a result, the Services may not be able to report readiness status and Status of Resources and Training System (SORTS) users may not have access to the readiness status of the Armed Forces after calendar year 1999. On behalf of the Army, the Joint Staff concurred with the recommendation to revise the system contingency plan for GCCS-A to incorporate the requirements of the DoD Management Plan.

Global Transportation Network

GTN System Description. GTN is a joint system managed by the U.S. Transportation Command. GTN is designed to provide accurate and timely

information on the transportation process to planners and decisionmakers. GTN interfaces with the JOPES Schedule and Movement segment providing real-time transportation and deployment information to users. GTN receives replicated information from 109 JOPES database tables using the software application Sybase Replication Agent for Oracle. Those tables included 48 reference tables, the JOPES user tables, and selected operation plans tables. After a record in JOPES is inserted, deleted, or updated, executing the change instructs Oracle to replicate the change in GTN. There is a two-way interface between GTN and JOPES. GTN was certified Y2K compliant on December 10, 1998.

Y2K Compliance Review Status. Inspector General, DoD, Report No. 99-133, "Year 2000 Compliance of the Global Transportation Network," April 13, 1999, stated that GTN certification, contingency plan, and interface agreements were adequate. The report disclosed no findings.

Joint Flow and Analysis System for Transportation

JFAST System Description. JFAST is a U.S. Transportation Command-owned system. The system is a multi-modal transportation analysis model designed for the U.S. Transportation Command and the joint planning community. JFAST is used to determine transportation requirements, perform course of action analyses, evaluate what-if scenarios, and project delivery profiles of troops and equipment by air, land, and sea. JFAST is primarily used during the planning phase of developing an operation plan to determine transportation feasibility. JFAST schedules military units from their installations to their airports and seaports of debarkation within the theater of operations. JFAST imports and exports requests for DoD transportation data through JOPES as a TPFDD. Those requirements are coupled with data from the Joint Strategic Capabilities Plan,* which provides planning data regarding airlift and sealift assets. JFAST was certified Y2K compliant on November 13, 1998.

JFAST System Certification. As a U.S. Transportation Command-owned system, JFAST followed the U.S. Transportation Command Y2K Certification Plan. The plan states that the U.S. Transportation Command will follow the Air Force Y2K plan. The focus of that plan is the Air Force Y2K Certification Tracking Document. The tracking document establishes a standard baseline process for the Y2K certification process and provides a system continuity document for its certification process. The document consists of mandatory milestones required as exit criteria for each of the five phases of the DoD Y2K management strategy. The plan requires a U.S. Transportation Command Y2K certifier and the system program manager to certify the system as Y2K compliant. In addition, the Joint Interoperability Test Command participated in the Y2K compliance action for JFAST and issued an independent report of its assessment.

*Provides the strategic direction required to coordinate the planning efforts of the combatant commanders in pursuit of national objectives.

JFAST Contingency Plan. JFAST developed a system contingency plan, as required by the DoD Management Plan. The JFAST System Contingency Plan described the mission, roles, and responsibilities of its users. The plan discussed four of the most likely scenarios to occur and a workaround for each of the scenarios. The four scenarios were as follows.

- Y2K date problems are encountered in JFAST early.
- JFAST fails to become certified as Y2K compliant.
- Although certified as Y2K compliant, JFAST fails after implementation.
- Essential services needed by JFAST users fail or are adversely impacted.

The plan also addressed the criteria for invoking it, the expected life span of the plan, and the criteria for returning to normal operating procedures.

JFAST Interface Agreement. JFAST established an interface agreement with JOPEs. The established agreement met the minimum criteria as outlined in Appendix F of the DoD Management Plan.

Marine Air-Ground Task Force II

MAGTF II System Description. MAGTF II is an automated software system designed to support deliberate and crisis actions. MAGTF II serves as a bridge between the GCCS and the Logistics Automated Information System. MAGTF II enables the planner to communicate with JOPEs in order to transmit or receive TPFDDs. TPFDDs can be downloaded from JOPEs to MAGTF II and modified to support time-sensitive planning for deployment, employment, and redeployment of Marine forces. Marine Corps planners use MAGTF II for estimating lift, comparing alternative force structures, forecasting lift and sustainability requirements, and rapidly generating and refining TPFDDs to meet deadlines. MAGTF II was certified Y2K compliant on December 11, 1998.

MAGTF II System Certification. In a Y2K assessment, MAGTF II was determined to function as designed before and after January 1, 2000. Except for the interface agreement addressed in finding A, all essential documentation had been completed as set forth in the DoD Management Plan and by the Marine Corps' Year 2000 Action Team. It was determined that the system will process all pertinent dates in accordance with the DoD Management Plan. The system was determined to be Y2K compliant as of March 13, 1998, when testing was completed.

MAGTF II Contingency Plan. MAGTF II had an operational contingency plan, as required by the DoD Management Plan. The MAGTF II Contingency

Plan described the mission, roles, and responsibilities of its users. The plan listed four types of risk of loss, including loss of automated interface with JOPES. There were eight assumptions identified while developing the plan that must be considered when making changes to the plan. The plan also addressed the criteria for invoking it, the expected life span of the plan, and the criteria for returning to normal operating procedures.

MAGTF II Interface Agreement. MAGTF II established an interface agreement with JOPES on September 8, 1999. The established agreement met the minimum criteria as outlined in Appendix F of the DoD Management Plan.

Appendix E. Report Distribution

Office of the Secretary of Defense

Under Secretary of Defense (Comptroller)
Deputy Chief Financial Officer
Deputy Comptroller (Program/Budget)
Under Secretary of Defense for Personnel and Readiness
Assistant Secretary of Defense (Command, Control, Communications, and Intelligence)
Deputy Chief Information Officer and Deputy Assistant Secretary of Defense (Chief Information Officer Policy and Implementation)
Principal Director for Year 2000
Director, Defense Logistics Studies Information Exchange

Joint Staff

Director, Joint Staff

Department of the Army

Assistant Secretary of the Army (Financial Management and Comptroller)
Chief Information Officer, Army
Inspector General, Department of the Army
Auditor General, Department of the Army

Department of the Navy

Assistant Secretary of the Navy (Financial Management and Comptroller)
Chief Information Officer, Navy
Inspector General, Department of the Navy
Auditor General, Department of the Navy
Inspector General, Marine Corps

Department of the Air Force

Assistant Secretary of the Air Force (Financial Management and Comptroller)
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Unified Commands

Commander in Chief, U.S. European Command
Commander in Chief, U.S. Pacific Command
Commander in Chief, U.S. Joint Forces Command

Unified Commands (cont'd)

Commander in Chief, U.S. Southern Command
Commander in Chief, U.S. Central Command
Commander in Chief, U.S. Space Command
Commander in Chief, U.S. Special Operations Command
Commander in Chief, U.S. Transportation Command
Commander in Chief, U.S. Strategic Command

Other Defense Organizations

Director, Defense Contract Audit Agency
Director, Defense Information Systems Agency
 Inspector General, Defense Information Systems Agency
 Chief Information Officer, Defense Information Systems Agency
Director, Defense Logistics Agency
Director, National Security Agency
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Inspector General, Defense Intelligence Agency
Inspector General, National Imagery and Mapping Agency
Inspector General, National Reconnaissance Office

Non-Defense Federal Organizations and Individuals

Chief Information Officer, General Services Administration
Office of Management and Budget
 Office of Information and Regulatory Affairs
General Accounting Office
 National Security and International Affairs Division
 Technical Information Center
 Accounting and Information Management Division
 Director, Defense Information and Financial Management Systems

Congressional Committees and Subcommittees, Chairman and Ranking Minority Member

Senate Committee on Appropriations
Senate Subcommittee on Defense, Committee on Appropriations
Senate Committee on Armed Services
Senate Committee on Governmental Affairs
Senate Special Committee on the Year 2000 Technology Problem
House Committee on Appropriations
House Subcommittee on Defense, Committee on Appropriations
House Committee on Armed Services
House Committee on Government Reform

**Congressional Committees and Subcommittees, Chairman and
Ranking Minority Member (cont'd)**

House Subcommittee on Government Management, Information, and Technology,
Committee on Government Reform
House Subcommittee on National Security, Veterans Affairs, and International
Relations, Committee on Government Reform
House Subcommittee on Technology, Committee on Science

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U. S. Transportation Command Comments



UNITED STATES TRANSPORTATION COMMAND
508 SCOTT DR
SCOTT AIR FORCE BASE IL 62225-5357

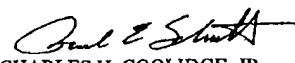
07 SEP 1999

MEMORANDUM FOR OFFICE OF THE INSPECTOR GENERAL, DOD
ATTENTION: MR. SHELTON YOUNG

FROM: TCJ3/J4

SUBJECT: USTRANSCOM Response to DOD IG Draft Report on Joint Operation Planning
Year 2000 Issues (Project 9LG-0096)

We have reviewed the DOD IG draft report on "Joint Operation Planning Year 2000 Issues" and provide the attached comments, as requested. TCJ3-OPT reviewed an earlier "out of channel" draft report on 4 Aug 99, and provided comments to the report OPR. Some of the comments were incorporated into this version of the draft, some were not. We clarify those instances in the attached comments. If you have any questions or need additional information, please contact Lt Col William Changose, TCJ3-OPT, 618-256-8026 (DSN 576-8026).

for 
CHARLES H. COOLIDGE, JR.
Major General, USAF
Director, Operations and Logistics

Attachment:
Comments on Draft Report

cc:
USTRANSCOM/TCJ8-B

USTRANSCOM Comments on DOD Draft Audit Report on
Joint Operation Planning Year 2000 Issues" (Project 9LG-0096)

Listed below are the DOD IG's recommendations from their draft audit report. There is some confusion on the use of terminology, so our responses are formatted accordingly. It should be noted, these recommendations from the DOD IG are to be applied to active operations during the Year 2000 transition period, per their report.

Recommendation B.2. We recommend that the Commander in Chief, U.S. Transportation Command:

- a. Identify resources to meet early time-phased forced and deployment data requirements submitted by unified commands.
- b. Host conferences to confirm and deconflict resources to meet unified command airlift and sealift transportation requirements.
- c. Provide applicable unified commands with resourced time-phased force and deployment data based on strategic resources allocated to support deployment.

USTRANSCOM Response:

- a. Originally concurred with Recommendation B.2.a based on the assumption "resources" meant transportation assets (i.e. TALCES, MTMC port teams, etc.).
 - (1) If "resources" means identifying actual units (sourcing) to fill the unified command's requirements, then we must non-concur. USTRANSCOM does not source a supported command's requirements. ACOM and other supporting commands would do the sourcing
 - (2) If "resources" means transportation assets, then we do concur. Based on the TPFDD we receive from the supporting commander, USTRANSCOM will work transportation assets into the TPFDD flow as ULNs.
- b. On Recommendation B.2.b, we originally stated that USTRANSCOM's role is to host the planning conferences in which air and sea deconflicts can be made, as well as discuss other issues. TPFDD maintenance conferences already exist and can be used for this purpose and others. Once again we are a little confused with the term "resources"; are they transportation assets or actual units that source the requirements?
 - (1) If "resources" are actual units sourcing requirements in the TPFDD, then USTRANSCOM transportation planners work with supported CINC

transportation planners to solve flow problems and make recommendations to the supported CINC staff. Use of conferences is scenario dependent.

(2) If "resources" are transportation assets, then the process would entail USTRANSCOM deconflicting it's own ULNs within the TPFDD flow.

c. On Recommendation B,2.c, we suggested USTRANSCOM will provide TPFDD closure estimates based on strategic resources allocated to support the deployment. This is per crisis action procedures. Recommend DOD IG adopts this verbage.

Defense Information Systems Agency Comments

Final Report
Reference



IN REPLY
REFER TO:

Inspector General (IG)
June 1999

10 September 1999

DEFENSE INFORMATION SYSTEMS AGENCY

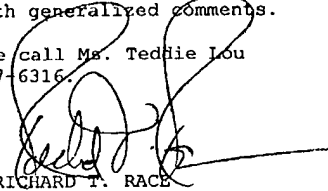
701 S. COURTHOUSE ROAD
ARLINGTON, VIRGINIA 22204-2100

MEMORANDUM FOR INSPECTOR GENERAL, DEPARTMENT OF DEFENSE
(ATTN: READINESS AND LOGISTICS SUPPORT
DIRECTORATE)

SUBJECT: Response to DoD IG Draft Report, "Audit of Year 2000
Issues for Joint Operational Planning (Project 9LG-
0096)

1. The attached enclosure is the official DISA response to the
subject report. DISA was required to issue formal comments on
Recommendations A.1 through A.5. These recommendations are
addressed in the enclosure along with generalized comments.

2. If you have any questions, please call Ms. Teddie Lou
Steiner, Audit Liaison, at (703) 607-6316.


RICHARD T. RACE
Inspector General

- 4 Enclosures
1. Response to Recommendations
 2. Comments on GCCS Higher Level Tests
 3. Comments on Project 9LG-0096
 4. GCCS Problem Resolution

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*

Quality Information for a Strong Defense

*Omitted because of length. Copies will be provided on request.

**Partial comments enclosed. Remaining copies will be provided on request.

Enclosure 1

FINDING A.1: Properly report GCCS as certified level 3d until all external interfaces are tested and all repairs are made or workarounds identified.

CONCURRENCE: NONCONCUR

COMMENT: The Center For Integration (CFI) verified that the MAGTF II interface worked correctly on 8 September 1998, attachment 1. On 6 Nov 1998, CFI's test report on GCCS-A and COMPASS verified GCCS-A and COMPASS interfaces with GCCS, attachment 2. JITC participated in the EUCom OPEVAL where the COMPASS and GCCS-A interfaces were tested successfully. The JITC found that the documentation provided by the CINC OPEVAL test report did not provide sufficient information to allow them to certify the interfaces. JITC also participated in the ACOM OPEVAL where the MAGTF II, COMPASS and GCCS-A interfaces with GCCS were successfully tested. Once again the JITC was not given sufficient test documentation to recommend certification of the interfaces. The JITC conducted an additional test at FORSCOM. The interface with GCCS-A has been revalidated by the JITC and they are still looking at the data for COMPASS. MAGTF II was retested in the August 1999 End-to-End with no Y2K problems.

All interfaces have been successfully tested on the 3.0.1/3.0.2 baseline and are in the process of being validated by the JITC on the 3.0.3 baseline as a result of the End-to-End test that just concluded. GTN is still being modified and will be ready to interface with GCCS during the October TRANSCOM OPEVAL.

All known Y2K problems with PDR, RDA, EVAC and JSIT have either been fixed or operational workarounds have been established

CORRECTIVE ACTION: None

COMPLETION DATE: N/A

FINDING A.2: Verify electronic interfaces between JOPES and COMPES, GCCS-A, and MAGTF II are tested.

CONCURRENCE: CONCUR

COMMENT: Already completed as of November 1998. The Center For Integration (CFI) verified that the MAGTF II interface worked correctly on 8 September 1998, attachment 1. On 6 Nov 1998, CFI's test report on GCCS-A and COMPASS verified GCCS-A and COMPASS interfaces with GCCS, attachment 2. JITC participated in the EUCom OPEVAL where the COMPASS and GCCS-A interfaces were tested successfully. The JITC found that the documentation provided by the CINC OPEVAL test report did not provide sufficient information to allow them to certify the interfaces. JITC also participated in the ACOM OPEVAL where the MAGTF II, COMPASS and GCCS-A interfaces with GCCS were successfully tested. Once again the JITC was not given sufficient test documentation to recommend certification of the interfaces. The JITC conducted an additional test at FORSCOM. The interface with GCCS-A has been revalidated by the JITC and they are still looking at the data for COMPASS. MAGTF II was retested in the August 1999 End-to-End with no Y2K problems.

CORRECTIVE ACTION: None

COMPLETION DATE: N/A

FINDING A.3: Complete the MOA between GCCS and MAGTF II.

CONCURRENCE: CONCUR

COMMENT: The Y2K MOA with MAGTF II was missing three pieces of information: 1) Y2K strategy chosen by the sending system, 2) Y2K strategy chosen by the receiving system, and 3) a description of the interface. The Joint Staff coordinated message 122014Z Aug 98, attachment 3, directed all external systems, to include MAGTF II, to follow the 50/50 rule for two digit date

fields within the predefined TPFDD and to follow the sliding window technique for JOPES transactions that utilize a single year digit.

CORRECTIVE ACTION: MOA between GCCS and MAGTF II has been modified to reflect the guidance contained in the Joint Staff message and has been resigned.

COMPLETION DATE: 8 Sep 99

FINDING A.4: Communicate to all users of JOPES the results of year 2000 tests on the transition baseline.

CONCURRENCE: CONCUR

COMMENT: All the problems are minor in nature with minimal operational impact.

CORRECTIVE ACTION: The problems will be posted on the GCCS SIPRNET home page

COMPLETION DATE: 1 October 1999

FINDING A.5: Establish a GCCS baseline that will transition into the year 2000 and conduct all remaining year 2000 tests, including End-to-End tests, on that baseline.

CONCURRENCE: CONCUR

COMMENT: Previously done. The GCCS 3.0.1 baseline would have transitioned GCCS through year 2000 successfully. GCCS 3.0.2 and 3.0.3 added new mission critical functionality, enhanced GCCS security, and eliminated some of the operational workarounds. GCCS 3.0.3, like 3.0.1 and 3.0.2, will transitioned through the year 2000 successfully.

CORRECTIVE ACTION: None

COMPLETION DATE: N/A

Enclosure 2

INTEROFFICE MEMORANDUM

TO: IG

FROM: D6

DATE: 9 Sep 99

SUBJECT: DoD IG Draft Report, Audit of Year 2000 Issues for Joint Operational Planning
(Project No. 9LG-0096)

Reference: Your letter, subject as above, 24 Aug 99
DoD IG Draft of a Proposed Audit Report, Joint Operation Planning Year 2000
Issues, 18 Aug 1999

Preparer: Lt Col Dave Mart/D6/735-8524/dmm

1. In response to the DoD IG request, we have reviewed their draft report. Our detailed comments are provided in enclosure 2.

**

2. DISA has worked extremely hard to ensure that GCCS will transition across the critical Y2K dates. GCCS versions 3.0.1, 3.0.2, and 3.0.3 have all been tested and certified as Y2K compliant. Any problems discovered were documented, workarounds were established for the near term, and fixes were scheduled for future releases. Seven CINC operational evaluations and the recently completed End-to-End test have demonstrated that GCCS will successfully operate through the Year 2000 transition and we are fully confident of the Y2K compliance of GCCS. Enclosure 1 shows the OPEVALS that GCCS has participated in for each version.

*

3. In Dec 1998, GCCS version 3.0.1 was certified Y2K compliant. GCCS was first tested by the Center For Integration, CFI, an independent agent as defined by the DoD Y2K Management Plan. DISA, to assure a higher level of confidence, tasked the Joint Interoperability Test Center, JITC, to provide an additional independent test and validation. After JITC completed their testing they initially recommended a certification level of 3d because they had not been able to test all the interfaces. This level indicates that the system had been self-certified, indicating potential problems and that the system needed additional work before Year 2000 processing could be assured with any level of reliability. However, the system was not self-certified. It was tested independently by the JITC and by CFI; therefore, a level 1 certification with documented problems was warranted. The JITC subsequently recommended a level 1c that would have indicated an independent assessment with an incomplete assessment of interfaces, a category that was not defined in the DoD Y2K Management Plan. Based on the JITC recommendation and recommendations from the DISA CIO and GCCS Chief Engineer, the Deputy Director certified the system level 2a and annotated all known problems on the Y2K Certification Checklist. In December 1998, the Deputy Director believed that level 2a accurately reflected the status of GCCS. We now believe the system should have been certified 1b with operational workarounds to the noted problems as allowed by the DoD Y2K Management Plan.

*Omitted because of length. Copies will be provided on request.

**Partial comments enclosed. Remaining copies will be provided on request.

Final Report
Reference

Revised

Revised

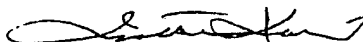
4. In February 1999, GCCS version 3.0.2 was released bringing SORTS SNAPSHOTS and DBSELECT capability. This version was retested and certified Y2K compliant at assurance level 2b based on JITC auditing of GCCS 3.0.2.

5. In July 1999, GCCS version 3.0.3 was released. This version included changes to COTS products caused by vendors' identification of Y2K problems. It accommodated other systems' Y2K changes to external interfaces in the common operational picture. Additionally, it fielded planned changes to applications to eliminate Y2K workarounds. Once again, GCCS version 3.0.3 was tested and certified Y2K compliant. The certification checklist has been prepared and JITC recommended a Y2K assurance level of 1b.

6. GCCS and JOPES, in particular, are not at increased risk of being able to continue operations in 2000. The problems noted in the report were all well documented with work-arounds or fixes planned at the time the IG performed their audit. The JOPES interfaces had all been independently tested and certified Y2K compliant by the CFI. The JITC was actively engaged in doing an additional independent test of the interfaces at the time of the DoD IG audit. We stand by our decision, as proper and correct, to certify and validate GCCS as fully Y2K compliant.

7. We are doing everything possible to ensure GCCS crosses into the 21st century successfully and continues to operate. We are standing up a GCCS Command Center on December 29th through January 4th to rapidly respond to any potential GCCS problem 24 hours a day, seven days a week. This center, in concert with the existing GCCS Management Center and GCCS Technical Assistance Center, will allow us to focus all our expertise on any potential problem. The center was exercised during the End-to-End test and will be stood up again as we roll through 9/9/99. Enclosure 3 illustrates how we will resolve problems during the critical time periods.

8. We thank the DoD IG for their assistance in ensuring that GCCS will correctly transition the critical transition dates. Questions or comments on our response should be addressed to Lt Col Dave Mart, (703) 734-8524, DSN 653-8524.



INTAE KIM, Lt Col, USAF
GCCS Chief Engineer

3. Enclosures
1. GCCS Higher Level Tests
 2. Comments on Project 9LG-0096
w/ 3 attachments
 1. MAGTF II Test Report
 2. GCCS-A & COMPASS Test Report
 3. GCCS JOPES Y2K message 122014Z AUG 98
 3. GCCS Problem Resolution

Copy to:
D2
D3
CIO

*Omitted because of length. Copies will be provided on request.

**Partial comments enclosed. Remaining copies will be provided on request.

**

Enclosure 3

COMMENTS ON PROJECT 9LG-0096

1)

PAGE: Executive Summary

PARA: Results

REFERENCE YOUR STATEMENT: As a result, the level of Y2K certification for JOPES was incorrect and the system was at an increased risk of not being able to continue operations in the event of a Y2K disruption (finding A).

COMMENT: We agree that the Y2K certification was incorrect but we disagree with the DoD IG that the system should have been certified as a 3d. The correct certification level should have been 1b. We disagree that the system was at an increased risk of being able to continue operations. The problems identified in the IG report were all documented and workarounds had been identified. Workarounds are acceptable as a Y2K solution.

CORRECTIVE ACTION: Change the certification level of GCCS to 1b

COMPLETION DATE: 8 Sep 1999

2)

PAGE: ii

PARA: Summary of Recommendations

FINDING: We recommend that the Director, DISA, ensure the electronic interfaces between JOPES and the systems interfacing with JOPES are tested; complete the MOA between GCCS and MAGTF II; communicate to all JOPES users, the results of Y2K tests on the Y2K transition baseline; make repairs or identify workarounds on applicable JOPES segments; and establish a GCCS baseline that will transition into the year 2000.

CONCURRENCE: CONCUR with comments

COMMENT: All interfaces have been successfully tested on the 3.0.1/3.0.2 baseline and are in the process of being validated by the JITC on the 3.0.3 baseline. GTN is still being modified and will be ready to interface with GCCS during the October TRANSCOM OPEVAL. The missing information from the MOA between GCCS and MAGTF II has been added and the MOA has been resigned. The Y2K test results and all Y2K problems that require workarounds will be posted on the GCCS SIPRNET home page by 1 October. JET is available to the sites as a second workaround for RDA and PDR. A GCCS Y2K transition baseline has been established since 3.0.1. Changes to the baseline, 3.0.2 and 3.0.3, have been made to add additional capability for the users and to fix Y2K and non-Y2K problems.

CORRECTIVE ACTION: Post test results and operational workarounds on the GCCS website.

COMPLETION DATE: 1 October 1999

3)

PAGE: 3

PARA: A

REFERENCE YOUR STATEMENT: DISA certified GCCS and JOPES at assurance level 2a without testing all external system electronic interfaces and without a complete Y2K memorandum of agreement (MOA) with

MAGTF II

COMMENT: We nonconcur. The Center For Integration (CFI) verified that the MAGTF II interface worked correctly on 8 September 1998, attachment 1. On 6 Nov 1998, CFI's test report on GCCS-A and COMPASS verified GCCS-A and COMPASS interfaces with GCCS,

**Partial comments enclosed. Remaining copies will be provided on request.

PAGE: 7

PARA: JOPES Y2K Related Problems

REFERENCE YOUR STATEMENT: DISA could not gauge the cumulative effect of the identified JOPES Y2K problems because the agency did not identify a static JOPES baseline.

COMMENT: We nonconcur. DISA has a well-established configuration control process. GCCS 3.0.1 established a Y2K compliant baseline that would have transitioned across the millennium with minimal operational impact. GCCS 3.0.2 added twenty segments to the 3.0.1 baseline. GCCS 3.0.3 added seventy segments to the baseline. Each of these versions were tested and certified Y2K compliant before they were released.

CORRECTIVE ACTION: None

COMPLETION DATE: N/A

18)

PAGE: 7

PARA: JOPES Y2K Related Problems

REFERENCE YOUR STATEMENT: Segment tests were conducted on GCCS 3.0.2; JITC tests were conducted on GCCS 3.0.1; and end-to-end test scheduled for August 1999 will be conducted on GCCS 3.0.3.

COMMENT: We concur. However, segment and JITC testing was completed on GCCS 3.0.1, 3.0.2, and 3.0.3, not only 3.0.2 and 3.0.1 as reported in the finding. The developer tests each segment and delivers it to CFI for integration and testing. The JITC conducts functional testing and then CFI conducts integration and Y2K testing. After successful testing, a system version release is established and is given to the JITC for an independent Y2K assessment. This process was followed for versions 3.0.1, 3.0.2, and 3.0.3. JITC conducted an independent test of 3.0.1, independently audited CFI tests for 3.0.2, and independently tested 3.0.3. The End-to-End test was designed as one last opportunity to give DISA and the operational community additional confidence in the interfaces on the 3.0.3 version.

CORRECTIVE ACTION: None

COMPLETION DATE: N/A

19)

PAGE: 7

PARA: JOPES Y2K Related Problems

REFERENCE YOUR STATEMENT: JOPES users rely on Stage 2 applications that are not considered part of GCCS 3.0.3, and will not be included in the end-to-end tests.

COMMENT: We nonconcur. Stage II applications are operational, fully functional applications that are fielded as separate capabilities on the GCCS baseline to get operational capability into the hands of the users. Each Stage II application goes through the same level of testing as the baseline to include developer testing, JITC functional testing, CFI integration and Y2K testing, and JITC Y2K testing. JET was included in the End-to-End testing and no Y2K anomalies were discovered.

CORRECTIVE ACTION: None

COMPLETION DATE: N/A

20)

PAGE: 8 & 9

PARA: Tables 1 & 2

COMMENT: Change the table titles to reflect 3.0.2 and 3.0.1 respectively

CORRECTIVE ACTION: None

Joint Staff Comments



THE JOINT STAFF
WASHINGTON, DC

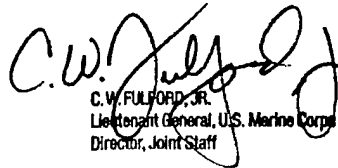
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20318-0300

DJSM-770-99
17 September 1999

MEMORANDUM FOR THE INSPECTOR GENERAL, DEPARTMENT OF
DEFENSE

Subject: Audit Report on Joint Operation Planning Year 2000 Issues (Project
No. 9LG-0096)

1. Thank you for the opportunity to provide comments on the draft DOD Audit Report¹ on Joint Operation Planning Year 2000 issues. Comments on the report recommendations pertaining to the Joint Staff are enclosed. Please note that we nonconcur in regard to the JOPES training issue because JOPES training is well established.
2. The Joint Staff point of contact for this report is Lieutenant Colonel Hayward Hull, hullha@js.pentagon.mil, (703) 695-0370.


C.W. FULFORD, JR.
Lieutenant General, U.S. Marine Corps
Director, Joint Staff

Enclosure

Reference:

- 1 DOD IG memorandum, 18 August 1999, "Audit Report on Joint Operation Planning Year 2000 Issues (Project No. 9LG-0096)"

ENCLOSURE

DRAFT OF A PROPOSED AUDIT REPORT: JOINT OPERATION
PLANNING YEAR 2000 ISSUES (PROJECT NO. 9LG-0096), 18 AUG 99

1. **RECOMMENDATION B.1.a.:** Revise the operational contingency plan for the Global Command and Control System (GCCS) to incorporate the requirements of the DOD Year 2000 Management Plan.

JOINT STAFF Comments: Concur. Will address DOD IG comments in revision of the GCCS Contingency Plan. Solutions identified in the contingency plan do not necessarily have to be labeled as Y2K contingencies to be valuable. The Joint Operation Planning and Execution System Year 2000 (JOPES) database may be unavailable due to direct attack or Y2K failure. The procedures to follow if JOPES is unavailable are the same. Will incorporate specific statements for Y2K problems.

Specific comments for each DOD report item needed in the contingency plan:

2. **DOD Report:** page 15, para 2

DOD Comment: "No specific provisions for the potential failure of all JOPES databases".

Concur. The contingency plan does not specifically state potential failure of all JOPES databases, but para 4.2 provides guidance "In the event of GCCS-JOPES failure." This guidance is in the case of failure of all JOPES databases. Will reword the paragraph to include Y2K as a potential cause of failure of all JOPES databases.

3. **DOD Report:** page 15, para 2

DOD Comment: "No guidance on how to orchestrate operations."

Concur. This plan will not tell CINCs how to run their command centers, but can provide guidance on NMCC operations during execution of crisis response cell or crisis action team activation. Will include specific guidance for orchestrating NMCC crisis action procedures.

4. **DOD Report:** page 15, para 3

DOD Comment: "Lacking procedures for JOPES users to detect possible corrupt system data."

Concur. These procedures are not Y2K specific and are the procedures in use today to detect any type of corrupt data. Will include specific instances to check for detection of Y2K-related failures.

Enclosure

5. **DOD Report:** page 15, para 3

DOD Comment: "Lacking impact that the loss of JOPES will have upon the mission."

Concur. The true impact will depend on the type of mission being executed at the time. Will include statement outlining possible impacts during various types of missions.

Page 18

6. **DOD Report:** page 15, para 3

DOD Comment: "Lacking procedures to restore data collected by alternative means into the corrected or restored system."

Concur. Will include statement addressing procedures for sites to input data.

Page 18

7. **DOD Report:** page 15, para 4

DOD Comment: "No description of procedures to divert operations to the use of another database."

Concur. Will include description of using database select capability currently within JOPES.

Page 18

8. **RECOMMENDATION B.1.b.(1):** Direct the unified commands to prepare complete JOPES operational contingency plans applicable to each unified commands' requirements

JOINT STAFF Comments: Concur. Message from Joint Staff J-3 in coordination for release. Message emphasizes that these plans also must be interoperable among all CINCs, Services, and agencies as JOPES is a national system.

9. **RECOMMENDATION B.1.b.(2):** Establish and implement a training plan for JOPES planners to become local experts for conducting operational plans and time-phased force and deployment data analysis to establish a knowledge base for each combatant command headquarters.

JOINT STAFF Comments: Nonconcur. Delete this recommendation. JOPES planners at each combatant command headquarters already are widely acknowledged as "the local experts for conducting operation plans and time-phased force and deployment data analysis." They have a significant amount of training, both classroom and on-the-job, before they are permitted to participate in developing, modifying, and analyzing operation plans and TPFDDs. The second paragraph under US Central Command, on page 16, also should be deleted, as it likewise misrepresents the amount of training provided to JOPES personnel.

Deleted

Deleted

Final Report
Reference

Renumbered
as Recommendation
B.1.b.(2)

10. **RECOMMENDATION B.1.b.(3):** Establish 10-day airlift and 30-day sealift time-phased force and deployment data requirements for active operations to transition to the year 2000.

JOINT STAFF Comments: Concur. Currently, we validate up to 7-day airlift and 30-day sealift for active operations. We will extend this validation window to 10 days for airlift to sustain support for active operations during the critical Y2K periods.

Audit Team Members

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